

Section 3. Natural Gas

Natural gas prices are developed for the residential, commercial, industrial, transportation, and electric power sectors. Reported natural gas prices are retail prices for sales of natural gas to ultimate users.

In general, taxes are included in the prices. However, taxes collected by a utility from an end user and turned over to a Government authority frequently are not included in the revenues reported in the source documents and, therefore, are not included in the prices. Taxes paid by the utility (rather than the end user) are considered operating costs and are passed on to the end user as part of the rate. Therefore, Federal, State, business, and property taxes are typically included in the prices, while sales and other point-of-purchase taxes typically are not.

Estimates of the amount of natural gas consumed by the residential, commercial, industrial, and electric power sectors are taken from the State Energy Data System (SEDS). Estimates for the industrial sector are adjusted to remove estimated refinery consumption and lease and plant use of natural gas, and estimates of transportation sector use are adjusted to remove pipeline fuel in each State. (See the discussion in Section 7, "Consumption Adjustments for Calculating Expenditures," at http://www.eia.doe.gov/emeu/states/sep_prices/notes/pr_consum-adj.pdf.)

Residential, Commercial and Industrial Sectors

Prices: 1987 Forward

All natural gas physical unit prices by State for the residential, commercial, and industrial sectors are taken from data collected on the Form

EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." These prices are available on the Energy Information Administration's (EIA) Web site in the Natural Gas Navigator or the *Historical Natural Gas Annual (HNGA)*, and published from 1999 forward in Tables 26 through 76 of the *EIA Natural Gas Annual 2003*.

Prices: 1970 Through 1986

All natural gas physical unit prices for the residential, commercial, and industrial sectors are calculated from value and quantity of sales data from the EIA *HNGA* or its predecessor report, *Natural Gas Production and Consumption*. State prices are calculated directly from the data sources as average revenue per unit of sales by natural gas utilities. Prices for each of the three sectors are calculated by dividing the value of natural gas, reported in thousands of dollars, by the quantity of natural gas sold, as reported in million cubic feet.

For 1970 through 1979, both the value and quantity of sales data from the *HNGA* are reported as composites for Maryland and the District of Columbia and for Maine, New Hampshire, and Vermont. In each case, the combined prices are assigned to each of the States in the composite.

Btu Prices: All Years

State Btu prices for all years are calculated by using the physical unit price series and the State-level average conversion factors for sectors other than electric power. U.S. Btu prices are calculated as the average of the State Btu prices, weighted by consumption data from SEDS, adjusted for process fuel consumption in the industrial and transportation sectors.

Data Sources

Prices

1997 forward: EIA, Natural Gas Navigator, http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm (use drop-down menu to select area, then click on icon that says “Downloadable Spreadsheet”) and published from 1999 forward in the EIA, *Natural Gas Annual 2003*, Tables 26 through 76.

1989 through 1996: Residential and Commercial — EIA, Natural Gas Navigator, http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm (use drop-down menu to select area, then click on icon that says “Downloadable Spreadsheet”). Industrial — EIA, *Historical Natural Gas Annual, 1930 Through 2000*, http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/historical_natural_gas_annual/hnga_historical.html, Tables 31 and 32.

1987 and 1988: Energy Information Administration, *Historical Natural Gas Annual, 1930 Through 2000*, http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/historical_natural_gas_annual/hnga_historical.html, Table 26 (residential), Table 28 (commercial); and Table 31 (industrial).

1980 through 1986: Calculated from quantity and value data published in the Energy Information Administration, *Natural Gas Annual, Volume 1*, Table 11 (1980), Table 14 (1981 through 1985), and Table 15 (1986). Comparable price data are available in the *Historical Natural Gas Annual, 1930 Through 1999*, Table 26 (residential), Table 28 (commercial), and Table 31 (industrial).

1970 through 1979: Calculated from quantity and value data published in the Bureau of Mines, U.S. Department of the Interior, *Natural Gas Production and Consumption*, Table 6 (1970 and 1979) and Table 7 (1971 through 1978). Comparable price data are available in the *Historical Natural Gas Annual, 1930 Through 1999*, Table 26 (residential), Table 28 (commercial), and Table 31 (industrial).

Consumption

1970 forward: Energy Information Administration, State Energy Data System, residential, commercial, and industrial natural gas consumption.

Conversion Factors: All Years

Energy Information Administration, factors published rounded in State Energy Data System Consumption Technical Notes, Tables B4 and B5, http://www.eia.doe.gov/emeu/states/sep_fuel/notes/use_b.pdf.

Transportation Sector

Most of the natural gas used for transportation is consumed in pipeline operations and is discussed in Section 7, “Consumption Adjustments for Calculating Expenditures,” at http://www.eia.doe.gov/emeu/states/sep_fuel/notes/consum_adjust.pdf. In SEDS, beginning in 1990, data for natural gas delivered for use as vehicle fuel are available. In prior years, these data are included in the commercial sector. Prices for natural gas consumed by vehicles are reported in the *Historical Natural Gas Annual* for 1990 through 1996, and the *Natural Gas Annual* for 1997 forward. Much of the natural gas delivered for vehicle fuel represents deliveries to fueling stations that are used primarily by fleet vehicles.

For 1992 forward, vehicle fuel prices are not available for some States. When that occurs, the average price of neighboring States is assigned as shown in Table TN11. The South Carolina price in 1998 is out of range and the price of natural gas used as vehicle fuel in Georgia for 1998 is assigned.

Data Sources

Prices

1990 forward: EIA, Natural Gas Navigator, http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm (use drop-down menu to select area, then click on icon that says “Downloadable Spreadsheet”) and

**Table TN11. Natural Gas Vehicle Fuel Price Assignments,
1992 Forward**

| State | Years | State Prices Used |
|-------|------------------|------------------------|
| AK | 1997–2003 | WA |
| AL | 2002 | GA, FL, TN |
| | 2003 | FL, TN |
| DE | 1994 | MD |
| GA | 1999 | AL, FL, SC, TN |
| | 2003 | FL, NC, SC, TN |
| IA | 2001–2003 | IL, KS, MO, MN, WI |
| ID | 2003 | MT, NV, OR, UT, WA, WY |
| ME | 1992–2003 | MA |
| MI | 2002, 2003 | IN, OH |
| MS | 2002, 2003 | AR, LA, TN |
| NC | 1996, 1997, 1999 | SC, TN, VA |
| | 1998 | TN, VA |
| NE | 1992, 1993 | CO, IA, SD, WY |
| | 1995–2000 | CO, IA, KS, MO, SD, WY |
| | 2001, 2003 | CO, KS, MO, WY |
| | 2002 | CO, KS, MO, SD, WY |
| NH | 1996–2003 | MA |
| NJ | 2002 | DE, NY, PA |
| NM | 1992, 1993 | AZ, CO, OK, TX |
| SC | 1998 | GA |
| SD | 2001, 2003 | MN, MT, ND, WY |
| VT | 1992–2003 | MA |
| WV | 2002, 2003 | MD |

published from 1999 forward in the EIA, *Natural Gas Annual 2003*, Tables 26 through 76.

Consumption

1990 forward: Energy Information Administration, State Energy Data System, natural gas vehicle consumption.

Conversion Factors: All Years

Energy Information Administration, unrounded conversion factors as published rounded in the State Energy Data System Consumption Technical Notes, Tables B4 and B5, http://www.eia.doe.gov/emeu/states/sep_fuel/notes/use_b.pdf.

Electric Power Sector

Prices: 2002 Forward

All natural gas physical unit prices by State for the electric power sector are taken from Tables 26 through 76 of the EIA *Natural Gas Annual 2003*. Where individual State prices are unavailable, they are developed by calculating the average price of all available surrounding States. In Alaska for 2002, the average electric power sector price of Alaska in 2001 and 2003 is used. Table TN12 lists the States and years where price assignments are made.

Prices: 1973, 1974, 1983 Through 2001

Prices for States are reported by *Cost and Quality of Fuels for Electric Plants (C&Q)* for gas consumed at steam-electric plants only. Btu prices are taken from *C&Q*, converted from cents to dollars per million Btu.

Where individual State prices are unavailable from *C&Q*, they are developed from the *HNGA*. Physical unit prices prior to 1987 are calculated by dividing the value of natural gas, reported in thousands of dollars, by the quantity of natural gas sold, reported in million cubic feet. For 1987 through 2001, physical unit prices are taken directly from the *HNGA*. Prices are not available from either *C&Q* or *HNGA* for some years. In these cases, quantity-weighted Census division prices from *C&Q* are assigned. In addition, prices for MT in 1997; Vermont in 1986; and Washington in 1986, 1987, 1990, and 1997 use quantity-weighted Census division prices from *C&Q* for more consistent prices than those available from the *HNGA* or more consistent with values in previous and later years. Table TN12 lists the States and years for which *HNGA* or *C&Q* Census division prices are used. Btu prices are calculated from the physical unit prices by using State-level electric power sector conversion factors.

Prices: 1980 Through 1982

State Btu and physical unit prices for 1980 through 1982 are taken from *C&Q* for all reporting plants. Physical unit prices are taken directly from the data source, while Btu prices are converted from cents to dollars per million Btu.

Table TN12. Natural Gas Electric Power Sector Price Assignments, 1973 Forward

| State | Years | Price Source |
|-------|-----------------------------------|--------------------------------|
| AK | 1973–1990 | HNGA |
| CT | 1974–1976 | HNGA |
| | 1973, 2000, 2001 | C&Q, <i>New England</i> |
| | 2003 | MA, NY, RI |
| DE | 2003 | MD, NJ, PA |
| ID | 1983–1986 | HNGA |
| | 1974, 1987, 1996–2001 | C&Q, <i>Mountain</i> |
| | 2003 | MT, NV, OR, UT, WA, WY |
| KY | 2003 | IL, IN, OH, VA, WV |
| MD | 1973, 1974, 1983–1985, 2001 | HNGA |
| | 2001 | C&Q, <i>South Atlantic</i> |
| ME | 1997–2001 | C&Q, <i>New England</i> |
| MN | 2003 | IA, WI |
| MO | 2003 | AR, IA, IL, KS, OK |
| MT | 1997 | C&Q, <i>Mountain</i> |
| NC | 1983–1990 | HNGA |
| ND | 1973, 1974, 1976–1986 | HNGA |
| | 2003 | MT |
| NH | 1973, 1974, 1987–1989 | HNGA |
| | 1983, 1996, 1998 | C&Q, <i>New England</i> |
| | 2003 | MA, ME |
| NM | 2003 | AZ, CO, OK, TX, UT |
| OR | 1983, 1984, 1986, 1989, 1990 | C&Q, <i>Pacific</i> |
| PA | 1973 | HNGA |
| RI | 1976, 1980 | HNGA |
| | 1999–2001 | C&Q, <i>New England</i> |
| SC | 1977 | HNGA |
| | 2003 | NC, GA |
| SD | 1983–1990 | HNGA |
| | 1997, 1999–2001 | C&Q, <i>West North Central</i> |
| | 2002, 2003 | IA, MT, NE, WY |
| TN | 1976, 1980, 1981, 1983, 1988–1996 | HNGA |
| | 1997–2001 | C&Q, <i>East South Central</i> |
| | 2003 | AL, AR, GA, MS, NC, VA |
| UT | 1988, 1989 | HNGA |
| VT | 1983–1985, 1989, 1990 | HNGA |
| | 1986 | C&Q, <i>New England</i> |
| | 2003 | MA, NY |
| WA | 1978, 1983–1985, 1988, 1989 | HNGA |
| | 1986, 1987, 1990, 1997, 1999–2001 | C&Q, <i>Pacific</i> |
| WY | 1973, 1975 | HNGA |

Prices: 1975 Through 1979

State prices are reported separately by *C&Q* for gas consumed at steam-electric plants and gas consumed at combustion turbine and internal combustion units. Weighted-average Btu prices are calculated by using the two *C&Q* prices and the respective gas deliveries for steam-electric and combustion use. The New Hampshire price in 1977 is not available from *C&Q*. A combined price is computed from value and quantity of sales data from the *HNGA* for Maine, New Hampshire, and Vermont and assigned to New Hampshire for 1977.

Prices: 1970 Through 1972

State prices for 1970 through 1972 are taken from *Natural Gas Production and Consumption* and are calculated similarly to the way prices for the residential, commercial, and industrial sectors are calculated. Prices, as average revenue per unit of sales, are computed from value and quantity of sales data from the source reports. A combined price is reported for New Hampshire and Vermont for 1971 and 1972, and each of these States is assigned the combined price. State Btu prices are calculated from the physical unit prices by using the State-level electric power conversion factors.

U.S. Prices: All Years

U.S. Btu prices are calculated as the average of the State Btu prices, weighted by consumption data from SEDS.

Data Sources**Prices**

1997 forward: EIA, Natural Gas Navigator, http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcunus_a.htm (use drop-down menu to select area, then click on icon that says “Downloadable Spreadsheet”) and published from 1999 forward in the EIA, *Natural Gas Annual 2003*, Tables 26 through 76.

1973 through 2001: Energy Information Administration, *Cost and Quality of Fuels for Electric Power Plants*, http://www.eia.doe.gov/cneaf/electricity/cq/cq_sum.html, Tables as shown in Table TN13.

1990 through 1996: Energy Information Administration, *Historical Natural Gas Annual 1930 Through 2000*, http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/historical_natural_gas_annual/hnga_historical.html, Table 31.

1980 through 1989: Energy Information Administration, *Natural Gas Annual 1992, Volume 2*, Table 23.

1976 through 1979: Energy Information Administration, Energy Data Reports, *Natural Gas Production and Consumption*, Table 7 (1976 through 1978) and Table 6 (1979). Comparable price data are available in the *Historical Natural Gas Annual, 1930 Through 1999*, Table 35.

1970 through 1975: Bureau of Mines, U.S. Department of the Interior, *Natural Gas Production and Consumption*, Table 6 (1970) and Table 7 (1971 through 1975). Comparable price data are available in the *Historical Natural Gas Annual, 1930 Through 1999*, Table 35.

Consumption

1970 forward: Energy Information Administration, State Energy Data System, electric power sector natural gas consumption.

Table TN13. Tables from EIA *Cost and Quality of Fuels for Electric Plants Used as Data Sources*

| Years | Price Data | Volume Data |
|------------|-------------------------|-------------|
| 1973, 1974 | Table 10 | Table 9 |
| 1975–1979 | Table 10, 16 | Table 9, 15 |
| 1980–1982 | Table 48 | - |
| 1983, 1984 | Table 53 | - |
| 1985–1987 | Table 43 | - |
| 1988, 1989 | Table 44 | - |
| 1990–1994 | Table 12 (1994 edition) | - |
| 1995–1996 | Table 12 (1999 edition) | - |
| 1997–2001 | Table 12 (2001 edition) | - |

Conversion Factors

Btu prices that are calculated directly from *Cost and Quality of Fuels for Electric Plants (C&Q)* require no conversion factors. When *Natural Gas Annual* data are used to develop prices that are missing from C&Q, conversion factors are used from the following source:

1970 forward: Energy Information Administration, State Energy Data System Consumption Technical Notes, Tables B2 and B3, http://www.eia.doe.gov/emeu/states/sep_fuel/notes/use_b.pdf.